

#### ABSTRACT OF THE DISCLOSURE

A logic system with adaptive supply voltage control comprising a logic circuit clocked by a clock signal from a clock generating circuit and a voltage conversion circuit for generating a dynamically regulated supply voltage for powering the logic circuit. A critical path delay of the logic circuit is designed to be equal to or shorter than a period of the clock signal. The voltage conversion circuit dynamically regulates the supply voltage of the logic circuit based on a bias voltage of the clock generating circuit. According to the invention, the power consumption is effectively minimized while ensuring the logic circuit to function correctly throughout all conditions.